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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,161	04/25/2001	Jeremy Sommer	SYMM:031US/JJB	8582

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EXAMINER	
LIU, SHUWANG	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/843,161	SOMMER ET AL.	
	Examiner	Art Unit	
	Shuwang Liu	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 April 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *07/02,06/02,01/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the labels shown in figures 8 and 9 are unclear to read. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

The empty space should be filed, for example, page 6, line 31 and page 7, lines 1-2, filing the correct application number instead of 09/XXX,XXX in the specification if appropriate.

Appropriate correction is required.

Claim Objections

3. Claims 1-17 are objected to because of the following informalities:

In claim 1, line 6, insert - - first- - before "variable."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 8-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not describe that controlling gain of the variable gain amplifier includes choosing one of eight discrete values of gain, choosing one of four discrete values of gain, or choosing one of two discrete values of gain as recited in claims.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 12-15, 20, 21 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(1) regarding claims 12-15:

It is unclear what definitions are for T_{normal}, $T_{shutdown}$, T_{sleep} and T_{dead} in the claims.

(2) regarding claims 20 and 21:

Claim 21 recites the limitation "said first direction" in line 15 and the limitation "said second direction" in lines 19-20. There is insufficient antecedent basis for these limitations in the claim.

(3) regarding claim 25:

Claim 25 recites the limitation "said first gain" in line 4, the limitation "said second variable gain amplifier" in line 5 and the limitation "said second gain" in line 6. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-7, 11, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Lemson (US 5,678,198).

As shown in figures 2-13, Lemson discloses a method, comprising extending a digital subscriber loop (column 33, lines 1-11) including:

(1) regarding claim 1:

producing an output signal (38, output from 32) from first variable gain amplifier (34) responsive to an input signal (14) from said digital subscriber loop;

monitoring (56 or 47 and 47', for example, in figures 2, 3, 7 and 12) a signal strength of said output signal;

generating a gain control signal (56b, output from 56 or 47 and 47') responsive to said signal strength; and

controlling (35) a gain of said variable gain amplifier responsive to said gain control signal (column 15, line 7-column 21, line 37 and column 24, lines 10-50).

(2) regarding claim 2:

wherein said input signal originates from a customer-premise side (10) of said digital subscriber loop.

(3) regarding claim 3:

wherein said input signal originates from a central office side (10) of said digital subscriber loop.

(4) regarding claim 4:

further comprising controlling another gain of another variable gain amplifier (34') responsive to said gain control signal.

(5) regarding claim 6:

wherein monitoring includes monitoring said signal strength using a peak detector circuit (56).

(7) regarding claim 7:

wherein generating said gain control signal includes generating said gain control signal using an automatic gain control loop filter (54).

(8) regarding claim 11:

further comprising detecting (68 or 77) whether a downstream signal is present on said digital subscriber loop (column 32, lines 35-67).

(9) regarding claim 16:

wherein controlling gain includes forcing a link termination (77, it is inherent for a modem).

(10) regarding claim 17:

wherein controlling said gain includes reestablishing a link (77, it is inherent for a modem).

10. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Darveau (US 6,236,726).

As shown in figure 4, Darveau discloses a method, comprising extending a digital subscriber loop (column 3, lines 65-67) including:

(1) regarding claim 1:

producing an output signal (output from 82) from first variable gain amplifier (86) responsive to an input signal (output from 82) from said digital subscriber loop;

monitoring (90-95) a signal strength of said output signal;

generating a gain control signal (output from 95) responsive to said signal strength; and

controlling (80 and 93-95) a gain of said variable gain amplifier responsive to said gain control signal (column 6, line 16-column 11, line 3).

(2) regarding claims 5:

further comprising controlling another gain of another variable gain amplifier (68 and 70) responsive to another gain control signal (output from 80), the another gain control signal generated in response to another signal strength (output from 98) of another output signal from another variable gain amplifier (68 and 70).

11. Claims 18-21, 30, 31, 33 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Ogawa (US 6,671,502).

As shown in figures 1-4, Ogawa discloses:

(1) regarding claims 18, 20, 21, 31, 34:

a method and an apparatus, the method comprising:

splitting a transmission medium at a point between a first (15) end and a second end (40) to deploy a repeater circuit;

controlling a repeater to operate in a downstream direction (down link) using a first variable gain amplifier (20) coupled to a first controller (21, 25, 31, 32 and 33 in the down link loop), said first variable gain amplifier having a first gain, said first controller having a first peak detector (31-33) and a first loop filter (21), said first gain controller

providing a first output signal (output from 20) having a first signal strength, said first peak detector monitoring said first signal strength of said first output signal, and said first loop filter generating a first gain control signal (output from 21), said first gain control signal feedback to said first variable gain amplifier to automatically adjust said first gain of said first variable gain amplifier; and

controlling said repeater to operate in an upstream direction (up link) using a second variable gain amplifier (20) coupled to a second controller (21, 25, 31, 32 and 33 in the up link loop), said second variable gain amplifier having a second gain, said second controller having a second peak detector (31-33) and a second loop filter (21), said second controller providing a second output signal (output from 20) having a second signal strength, said second peak detector monitoring said second signal strength of said second output signal, and said second loop filter generating a second gain control signal (output from 21), said second gain control signal feedback to said second variable gain amplifier to automatically adjust said second gain of said second variable gain amplifier (column 3, lines 20-56).

(2) regarding claim 19:

wherein generating said first gain control signal includes establishing a first control voltage as a function of said first signal strength of said first output signal, and generating said second gain control signal includes establishing a second control voltage as a function of said second signal strength of said second output signal (see figures2-4, column 2, line 13-column 5, line 19).

(3) regarding claim 30:

wherein said variable gain amplifier includes a voltage controlled amplifier chain (see figures 3-5).

(4) regarding claim 33:

wherein said first variable gain amplifier includes a first voltage-controlled amplifier chain and said second variable gain amplifier includes a second voltage-controlled amplifier chain (see figures 3-5) .

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 22, 26, 27, 32 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa in vies of Lemson (US 5,678, 198).

(1) regarding claims 22, 26, 27, 32, 37

Ogawa discloses all of the subject matter as described above (item 10) except for specifically teaching the repeater operating for discrete multi-tone asymmetric digital subscriber loop as claimed.

Lemson, in the same field of endeavor, teaches that the variable gain amplifier loop can be utilized in various types of transmission links including ADSL and HDSL (column 33, lines 1-11).

It would be desirable to apply the repeater to ADSL or HDSL in order to increase the dynamic range of a transmission link (column 7, lines 21-26), Lemson). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the repeater with variable gain amplifying control loop of Ogawa to ADSL or HDSL as taught by Lemson in order to increase the dynamic range of a transmission link.

14. Claims 28, 29, 35, 36, and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa and Lemson as applied to claims 22, 34 and 37 above, and further in view of Schneider et al. (US 6,625,116).

Ogawa and Lemson disclose all of the subject matter as described above (item 12) except for specifically teaching the digital subscriber loop extender circuit is interposed at an intermediate point of said asymmetric digital subscriber loop to extend said asymmetric digital subscriber loop, wherein said intermediate point lies between a provider end and a subscriber end. It is also inherent that gain is a function of a loop length.

Schneider et al., in the same field of endeavor, teaches that the digital subscriber loop extender circuit is interposed at an intermediate point of said asymmetric digital subscriber loop to extend said asymmetric digital subscriber loop, wherein said intermediate point lies between a provider end and a subscriber end (see figure 1).

It would be desirable to apply the repeater located at an intermediate point of ADSL or HDSL in order to increase the dynamic range of a transmission link and regenerating the data stream (column 5, lines 1-6, Shneider et al.). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the repeater of Ogawa to the location of the intermediate point of ADSL or HDSL as taught by Schneider in order to increase the dynamic range of a transmission link and regenerating the data stream.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (571) 272-3036.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (571) 272-3056.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Shuwang Liu
Primary Examiner
Art Unit 2634

November 24, 2004